

1077-60-898

Murad S. Taqqu* (murad@bu.edu), Department of Mathematics and Statistics, 111
Cummington St., Boston, MA 02215. *The Weierstrass function and Fractional Brownian motion.*

Benoit Mandelbrot suggested that Weierstrass' nowhere differentiable function can be modified and randomized so as to approximate fractional Brownian motion, which is a Gaussian self-similar process whose paths are almost surely non-differentiable. The randomization involves introducing independent and identically distributed random variables with finite variance in the definition of the Weierstrass function. We will show how one then obtains fractional Brownian motion in the limit.

If time allows we will describe various modifications and indicate what happens if, for example, one introduces in the above randomization strongly dependent random variables instead of independent ones or if one uses infinite variance random variables instead of finite variance ones.

This is joint work with Vladas Pipiras. (Received September 14, 2011)